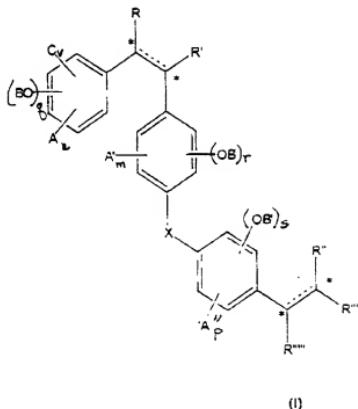


What is claimed is:

1. A compound of the formula I:



wherein stereocenters * are R or S;

dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

R and R' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups that may be substituted, or functional groups like COOR₃, where R₃ = H or C₁-C₂₀ linear or branched alkyl or C₅-C₂₀ aryl; CONR₁R₂, where R₁ and R₂ may be independently or together H, linear or branched C₁-C₂₀ alkyl or C₅-C₂₀ aryl, NH₂, OH, C₁-C₂₀ linear or branched alkoxy, halo, cyano, or R+R'=O.

A, A', A'', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, linear or branched C₁-C₂₀ alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkylamino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and n, m, and p are independently integers from 0 to 3;

B, B', and B'' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkyl carboxyl amino, C₁-C₂₀ carbalkoxy; aroyl, aralkanoyl, carboxyl, cyano, halo, hydroxy; and q, r and s are independently integers from 1 to 3;

R''', R''''' and R'''''' are independently H, C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents. COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, or cyano.

X = NH, O, S, S=O, or SO₂.

10

2. A compound according to Claim 1 wherein C and A are hydrogen.

3. A compound according to Claim 2 wherein q=2 and B is methyl.

4. A compound according to Claim 1 wherein A' is hydrogen and r = O.

5. A compound according to Claim 1 wherein A'' is hydrogen and s = O.

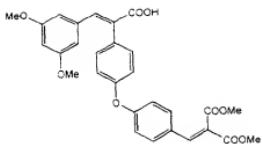
6. A compound according to Claim 1 wherein R is hydrogen and R' is -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

7. A compound according to Claim 1 wherein X is oxygen; R''' is hydrogen; and R'' and R'''' are independently -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

25 8. The compound according to Claim 1 of the formula:

30

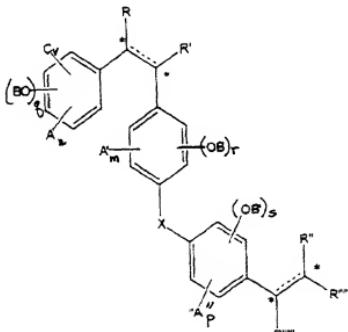
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9. A pharmaceutical composition containing a blood glucose lowering effective amount of a compound of formula I in a pharmaceutically acceptable carrier.

15
20



25

(I)

wherein stereocenters * are R or S;

30 dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

R and R' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups that may be substituted, or functional groups like COOR₃, where R₃ = H or C₁-C₂₀ linear or branched alkyl or C₅-C₂₀ aryl; CONR₁R₂, where R₁ and R₂ may be independently or together H, linear or branched C₁-C₂₀ alkyl or C₅-C₂₀ aryl, NH₂, OH, C₁-C₂₀ linear or branched alkoxy, halo, cyano, or R+R'=O.

A, A', A'', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, linear or branched C₁-C₂₀ alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkylamino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and n, m, and p are independently integers from 0 to 3;

B, B', and B'' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkyl carboxyl amino, C₁-C₂₀ carbalkoxy; aroyl, aralkanoyl, carboxyl, cyano, halo, hydroxy; and q, r and s are independently integers from 1 to 3;

R''', R'''' and R''''' are independently H, C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, or cyano.

X = NH, O, S, S=O, or SO₂.

10. A composition according to Claim 9 wherein C and A are hydrogen.

11. A composition according to Claim 10 wherein q=2 and B is methyl.

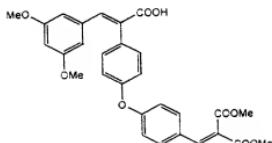
12. A composition according to Claim 9 wherein A' is hydrogen and r = O.

13. A composition according to Claim 9 wherein A'' is hydrogen and s = O.

14. A composition according to Claim 9 wherein R is hydrogen and R' is -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

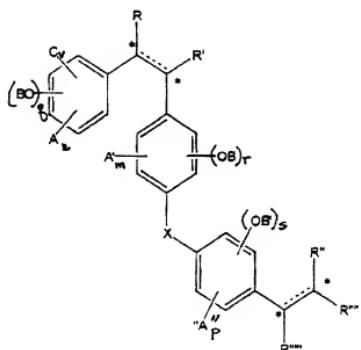
15. A composition according to Claim 9 wherein X is oxygen; R^{'''} is hydrogen; and R^{''} and R^{'''} are independently -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

5 16. The composition according to Claim 9 wherein the compound comprises:



10

17. A method for lowering blood glucose in a subject comprising administering to said subject an effective blood glucose lowering amount of a composition containing a compound of the formula I in a pharmaceutically acceptable carrier.



25

30

(1)

wherein stereocenters * are R or S;

dotted lines indicate that a double bond may be present or absent, and the double

5 bond geometry may be E or Z:

R and R' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups that may be substituted, or functional groups like COOR₃, where R₃ = H or C₁-C₂₀ linear or branched alkyl or C₅-C₂₀ aryl; CONR₁R₂, where R₁ and R₂ may be independently or together H, linear or branched C₁-C₂₀ alkyl or C₅-C₂₀ aryl, NH₂, OH, C₁-C₂₀ linear or branched 10 alkoxy, halo, cyano, or R+R'=O.

A, A'', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, linear or branched C₁-C₂₀ alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkylamino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and n, m, and p are independently integers from 0 to 3;

B, B', and B'' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkyl carboxyl amino, C₁-C₂₀ carbalkoxy; aroyl, aralkanoyl, carboxyl, cyano, halo, hydroxy; and q, r and s are independently integers from 1 to 3;

R''', R'''' and R''''' are independently H, C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, or cyano.

X = NH, O, S, S=O, or SO₂.

25 18. A method according to Claim 17 wherein C and A are hydrogen.

z A'methyl 19. A method according to Claim 18 wherein q=2 and B is methyl.

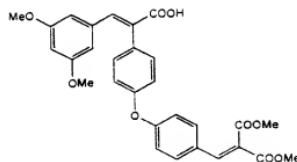
20. A method according to Claim 17 wherein A' is hydrogen and r = O.

30 21. A method according to Claim 17 wherein A'' is hydrogen and s = O.

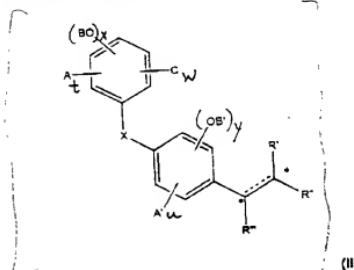
22. A method according to Claim 17 wherein R is hydrogen and R' is -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

5 23. A method according to Claim 17 in formula I wherein X is oxygen; R''' is hydrogen; and R''' and R'''' are independently -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

10 24. The method according to Claim 17 wherein said compound comprises:



25. A compound of the formula II:



*case file now formula II
written on p. 2 of this
continuation application
July 19, 2001*

25 wherein stereocenters * are R or S;

dotted lines indicates that a double bond may be present or absent, and the double bond geometry may be E or Z;

A, A', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀

alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and t, u, and w are independently integers from 0 to 3;

B and B' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl, C₁-C₂₀ alkenoyl, C₁-C₂₀ alkoxycarbonyl, C₁-C₂₀ linear or branched alkoxy,

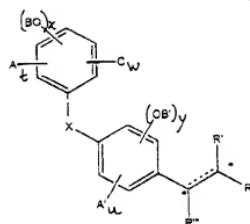
5 C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₆-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and x and y are independently integers from 0 to 3;

R', R'', and R''' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxycarbonyl, NH₂, CONH₂, C₁-

10 C₂₀ acylamino, C₁-C₂₀ alkoxycarbonyl, OH, C₁-C₂₀ alkoxy, halo or cyano.

X = NH, O, S, S=O, or SO₂

26. A pharmaceutically composition containing a blood glucose lowering effective amount of a compound of the formula II in a pharmaceutically acceptable carrier.



(II)

25 wherein stereocenters * are R or S;

dotted lines indicates that a double bond may be present or absent, and the double bond geometry may be E or Z;

30 A, A', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkoxycarbonyl, C₁-C₂₀ alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and t, u, and w are independently integers from 0 to 3;

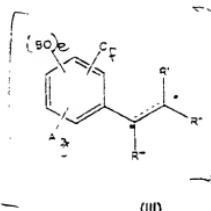
B and B' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl, C₁-C₂₀ alkenoyl, C₁-C₂₀ alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₆-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and x and y are independently integers from 0 to 3;

R', R'', and R''' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents. COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo or cyano.

X = NH, O, S, S=O, or SO₂

10

28. A compound of the formula III.



*(Handwritten notes: 100% of weight E,
which is based on
P-2 and P-3 July 1968)*

wherein stereocenters (designated by *) could be R- or S-.

dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

A and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, carboxyl, cyano, halo, hydroxy; thiol, SOR or SOR₂; and f and g are independently integers from 0 to 3;

B is independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₅-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and e is an integer from 1 to 3;

25

30

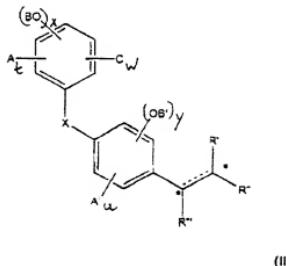
B and B' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkanoyl, C₁-C₂₀ alkenoyl, C₁-C₂₀ alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₆-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and x and y are independently integers from 0 to 3;

R', R'', and R''' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo or cyano.

X = NH, O, S, S=O, or SO₂

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27. A method for lowering blood glucose in a subject comprising administering to said subject an effective blood glucose lowering amount of a composition of the formula II.



25

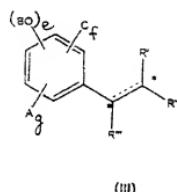
wherein stereocenters * are R or S;

dotted lines indicates that a double bond may be present or absent, and the double bond geometry may be E or Z:

A, A', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyan, halo, hydroxy; and t, u, and w are independently integers from 0 to 3;

R', R'', and R''' are independently H or C₁-C₂₀ linear and branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, cyano.

5 29. A pharmaceutically composition containing a blood glucose lowering effective amount of a compound of the formula III in a pharmaceutically acceptable carrier.



wherein stereocenters (designated by *) could be R- or S-.

20 dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

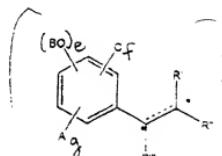
25 A and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; thiol, SOR or SOR₂; and f and g are independently integers from 0 to 3;

30 B is independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₅-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and e is an integer from 1 to 3;

35 R', R'', and R''' are independently H or C₁-C₂₀ linear and branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, cyano.

35 30. A method for lowering blood glucose in a subject comprising administering to said subject an effective blood glucose lowering amount of a composition of the formula III.

5

*Pre Am**n.m.r. Sample II*

(III)

10

wherein stereocenters (designated by *) could be R- or S-.

dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

15 A and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; thiol, SOR or SOR₂; and f and g are independently integers from 0 to 3;

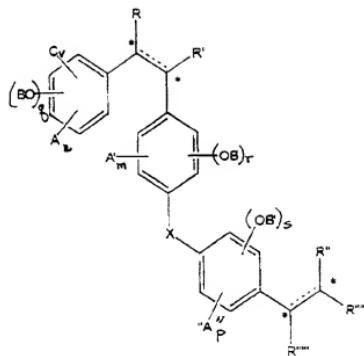
20 B is independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₅-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and e is an integer from 1 to 3;

R', R'', and R''' are independently H or C₁-C₂₀ linear and branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, cyano.

25

31. A pharmaceutical composition containing a serum triglyceride lowering effective amount of a compound of formula I in a pharmaceutically acceptable carrier.

30



wherein stereocenters * are R or S;

15 dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

20 R and R' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups that may be substituted, or functional groups like COOR₃, where R₃ = H or C₁-C₂₀ linear or branched alkyl or C₅-C₂₀ aryl; CONR₁R₂, where R₁ and R₂ may be independently or together H, linear or branched C₁-C₂₀ alkyl or C₅-C₂₀ aryl, NH₂, OH, C₁-C₂₀ linear or branched alkoxy, halo, cyano, or R+R'=O.

25 A, A', A'', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, linear or branched C₁-C₂₀ alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkylamino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and n, m, and p are independently integers from 0 to 3;

30 B, B', and B'' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkyl carboxyl amino, C₁-C₂₀ carbalkoxy; aryl, araalkanoyl, carboxyl, cyano, halo, hydroxy; and q, r and s are independently integers from 1 to 3;

R'''', R''''' and R'''''' are independently H, C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents. COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, or cyano.

X = NH, O, S, S=O, or SO₂.

5

32. A composition according to Claim 31 wherein C and A are hydrogen.

33. A composition according to Claim 32 wherein q=2 and B is methyl.

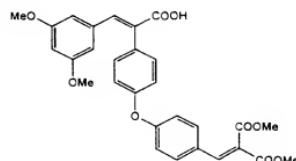
10 34. A composition according to Claim 31 wherein A' is hydrogen and r = o.

35. A composition according to Claim 31 wherein A'' is hydrogen and s = o.

15 36. A composition according to Claim 31 wherein R is hydrogen and R' is -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

20 37. A composition according to Claim 31 wherein X is oxygen; R''' is hydrogen; and R''' and R''''' are independently -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

38. The composition according to Claim 31 wherein the compound comprises:



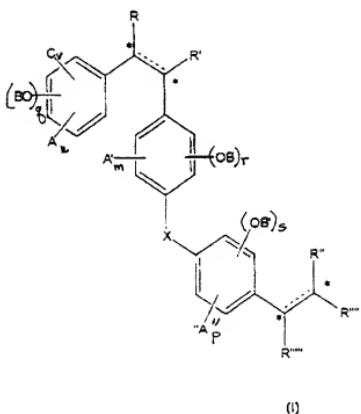
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39. A method for lowering serum triglyceride in a subject comprising administering to said subject an effective serum triglyceride lowering amount of a

composition containing a compound of the formula I in a pharmaceutically acceptable carrier.

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wherein stereocenters * are R or S;

dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

25

R and R' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups that may be substituted, or functional groups like COOR₃, where R₃ = H or C₁-C₂₀ linear or branched alkyl or C₅-C₂₀ aryl; CONR₁R₂, where R₁ and R₂ may be independently or together H, linear or branched C₁-C₂₀ alkyl or C₅-C₂₀ aryl, NH₂, OH, C₁-C₂₀ linear or branched alkoxy, halo, cyano, or R+R'=O.

30

A, A', A'', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, linear or branched C₁-C₂₀ alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkylamino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and n, m, and p are independently integers from 0 to 3;

B, B', and B'' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkyl carboxyl amino, C₁,C₂₀ carbalkoxy; aroyl, aralkanoyl, carboxyl, cyano, halo, hydroxy; and q, r and s are independently integers from 1 to 3;

R''', R'''' and R''''' are independently H, C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, or cyano.

X = NH, O, S, S=O, or SO₂.

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40. A method according to Claim 39 wherein C and A are hydrogen.

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41. A method according to Claim 40 wherein q=2 and B is methyl.

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42. A method according to Claim 39 wherein A' is hydrogen and r = O.

43. A method according to Claim 39 wherein A'' is hydrogen and s = O.

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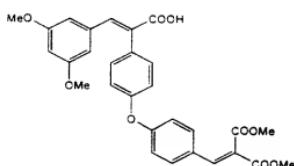
44. A method according to Claim 39 wherein R is hydrogen and R' is -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

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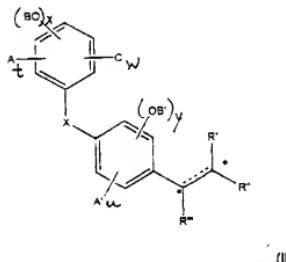
45. A method according to Claim 39 in formula I wherein X is oxygen; R''' is hydrogen; and R'' and R''' are independently -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

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46. The method according to Claim 39 wherein said compound comprises:



47. A pharmaceutically composition containing a serum triglyceride lowering effective amount of a compound of the formula II in a pharmaceutically acceptable carrier.



wherein stereocenters * are R or S;

dotted lines indicates that a double bond may be present or absent, and the double bond geometry may be E or Z;

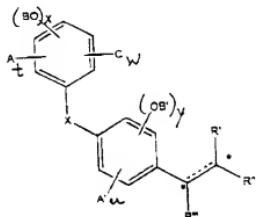
A, A', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and t, u, and w are independently integers from 0 to 3;

B and B' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl, C₁-C₂₀ alkenoyl, C₁-C₂₀ alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₆-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and x and y are independently integers from 0 to 3;

R', R'', and R''' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo or cyano.

X = NH, O, S, S=O, or SO₂

48. A method for lowering serum triglyceride in a subject comprising administering to said subject an effective serum triglyceride lowering amount of a composition of the formula II.



wherein stereocenters * are R or S;

dotted lines indicates that a double bond may be present or absent, and the double bond geometry may be E or Z;

A, A', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and t, u, and w are independently integers from 0 to 3;

B and B' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkanoyl, C₁-C₂₀ alkenoyl, C₁-C₂₀ alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₆-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and x and y are independently integers from 0 to 3;

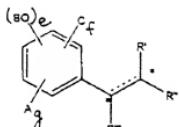
R', R'', and R''' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo or cyano.

X = NH, O, S, S=O, or SO₂

49. A pharmaceutically composition containing a serum triglyceride lowering effective amount of a compound of the formula III in a pharmaceutically acceptable carrier.

Pro forma only

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new formula III

(III)

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wherein stereocenters (designated by *) could be R- or S-.

dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

20 A and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; thiol, SOR or SOR₂; and f and g are independently integers from 0 to 3;

25 B is independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₅-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and e is an integer from 1 to 3;

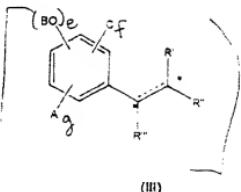
30 R', R'', and R''' are independently H or C₁-C₂₀ linear and branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, cyano.

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50. A method for lowering serum triglyceride in a subject comprising administering to said subject an effective serum triglyceride lowering amount of a composition of the formula III.

*P-2 Ar
S-2*

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see back

wherein stereocenters (designated by *) could be R- or S-.
dotted lines indicate that a double bond may be present or absent, and the double
bond geometry may be E or Z;

A and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; thiol, SOR or SOR₂; and f and g are independently integers from 0 to 3;

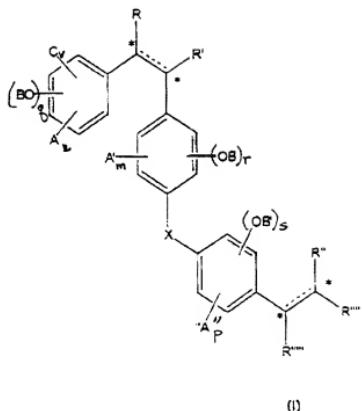
B is independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₃-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and e is an integer from 1 to 3;

R', R'', and R''' are independently H or C₁-C₂₀ linear and branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, cyano.

51. A pharmaceutical composition containing a blood pressure lowering effective amount of a compound of formula I in a pharmaceutically acceptable carrier.

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wherein stereocenters * are R or S;

dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

R and R' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups that may be substituted, or functional groups like COOR₃, where R₃ = H or C₁-C₂₀ linear or branched alkyl or C₅-C₂₀ aryl; CONR₁R₂, where R₁ and R₂ may be independently or together H, linear or branched C₁-C₂₀ alkyl or C₅-C₂₀ aryl, NH₂, OH, C₁-C₂₀ linear or branched alkoxy, halo, cyano, or R+R'=O.

A, A', A'', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, linear or branched C₁-C₂₀ alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkylamino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and n, m, and p are independently integers from 0 to 3;

B, B', and B'' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkyl carboxyl amino, C₁-C₂₀ carbalkoxy; aroyl, aralaikanoyl, carboxyl, cyano, halo, hydroxy; and q, r and s are independently integers from 1 to 3;

R''', R'''' and R''''' are independently H, C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, or cyano.

X = NH, O, S, S=O, or SO₂.

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52. A composition according to Claim 51 wherein C and A are hydrogen.

53. A composition according to Claim 52 wherein q=2 and B is methyl.

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54. A composition according to Claim 51 wherein A' is hydrogen and r = O.

55. A composition according to Claim 51 wherein A'' is hydrogen and s = O.

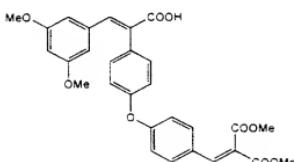
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56. A composition according to Claim 51 wherein R is hydrogen and R' is -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

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57. A composition according to Claim 51 wherein X is oxygen; R''' is hydrogen; and R''' and R''''' are independently -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

58. The composition according to Claim 51 wherein the compound comprises:



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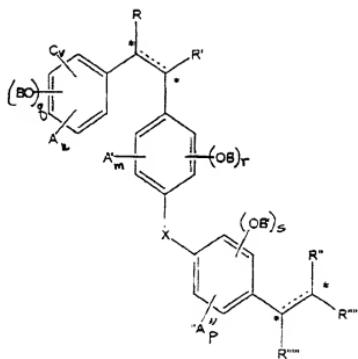
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59. A method for lowering blood pressure in a subject comprising administering to said subject an effective blood pressure lowering amount of a composition containing a compound of the formula I in a pharmaceutically acceptable carrier.

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wherein stereocenters * are R or S;

dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

25 R and R' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups that may be substituted, or functional groups like COOR₃, where R₃ = H or C₁-C₂₀ linear or branched alkyl or C₅-C₂₀ aryl; CONR₁R₂, where R₁ and R₂ may be independently or together H, linear or branched C₁-C₂₀ alkyl or C₅-C₂₀ aryl, NH₂, OH, C₁-C₂₀ linear or branched alkoxy, halo, cyano, or R+R'=O.

30 A, A', A'', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, linear or branched C₁-C₂₀ alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkylamino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and n, m, and p are independently integers from 0 to 3;

B, B', and B'' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxycarbonyl, C₁-C₂₀ linear or branched alkoxy; C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkyl carboxyl amino, C₁-C₂₀ carbalkoxy; aroyl, aralkanoyl, carboxyl, cyano, halo, hydroxy; and q, r and s are independently integers from 1 to 3;

R''', R'''' and R''''' are independently H, C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxycarbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxycarbonyl, OH, C₁-C₂₀ alkoxy, halo, or cyano.

X = NH, O, S, S=O, or SO₂.

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60. A method according to Claim 59 wherein C and A are hydrogen.

12 Am only 61. A method according to Claim 60 wherein q=2 and B is methyl.

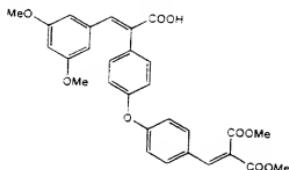
15 62. A method according to Claim 59 wherein A' is hydrogen and r = O.

63. A method according to Claim 59 wherein A'' is hydrogen and s = O.

20 64. A method according to Claim 59 wherein R is hydrogen and R' is -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

25 65. A method according to Claim 59 in formula I wherein X is oxygen; R''' is hydrogen; and R'' and R''' are independently -COOR₃, wherein R₃ is hydrogen, a cation, C₁-C₁₀ alkyl or C₅-C₁₀ aryl.

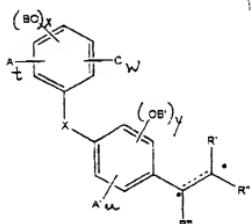
26 66. The method according to Claim 59 wherein said compound comprises:



67. A pharmaceutically composition containing a blood pressure lowering effective amount of a compound of the formula II in a pharmaceutically acceptable carrier.

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Pre Ara orile



(II)

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wherein stereocenters * are R or S;

dotted lines indicates that a double bond may be present or absent, and the double bond geometry may be E or Z;

20 A, A', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and t, u, and w are independently integers from 0 to 3;

25

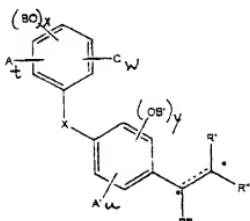
B and B' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkanoyl, C₁-C₂₀ alkenoyl, C₁-C₂₀ alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₆-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and x and y are independently integers from 0 to 3;

30

R', R'', and R''' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo or cyano.

X = NH, O, S, S=O, or SO₂

68. A method for lowering blood pressure in a subject comprising administering to said subject an effective blood pressure lowering amount of a composition of the formula II.



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15

wherein stereocenters * are R or S;

dotted lines indicates that a double bond may be present or absent, and the double bond geometry may be E or Z;

20

A, A', and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; and t, u, and w are independently integers from 0 to 3;

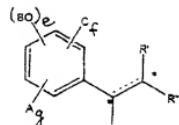
25

B and B' are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ alkanoyl, C₁-C₂₀ alkenoyl, C₁-C₂₀ alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₆-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and x and y are independently integers from 0 to 3;

30

R', R'', and R''' are independently H or C₁-C₂₀ linear or branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo or cyano.
X = NH, O, S, S=O, or SO₂

69. A pharmaceutically composition containing a blood pressure lowering effective amount of a compound of the formula III in a pharmaceutically acceptable carrier.



(III)

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wherein stereocenters (designated by *) could be R- or S-.

dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

A and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; thiol, SOR or SOR₂; and f and g are independently integers from 0 to 3;

B is independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₅-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and e is an integer from 1 to 3;

R', R'', and R''' are independently H or C₁-C₂₀ linear and branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, cyano.

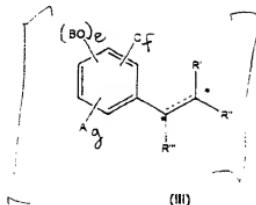
70. A method for lowering blood pressure in a subject comprising administering to said subject an effective blood pressure lowering amount of a composition of the formula III.

30

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Rec Am only

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*New II:*

wherein stereocenters (designated by *) could be R- or S-.

10 dotted lines indicate that a double bond may be present or absent, and the double bond geometry may be E or Z;

A and C are independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy, C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy; carboxyl, cyano, halo, hydroxy; thiol, SOR or SOR₂; and f and g are independently integers from 0 to 3;

B is independently H, C₁-C₂₀ acylamino, C₁-C₂₀ acyloxy; C₁-C₂₀ linear or branched alkanoyl, C₁-C₂₀ linear or branched alkenoyl, C₁-C₂₀ linear or branched alkenyl, C₁-C₂₀ alkoxy carbonyl, C₁-C₂₀ linear or branched alkoxy, C₁-C₂₀ linear or branched alkyl amino, C₁-C₂₀ alkylcarboxylamino, C₁-C₂₀ carbalkoxy, C₅-C₂₀ aroyl, C₆-C₂₀ aralkanoyl, carboxyl, cyan, halo, hydroxy; and e is an integer from 1 to 3;

R', R'', and R''' are independently H or C₁-C₂₀ linear and branched alkyl or alkenyl groups which may contain substituents, COOH, C₁-C₂₀ alkoxy carbonyl, NH₂, CONH₂, C₁-C₂₀ acylamino, C₁-C₂₀ alkoxy carbonyl, OH, C₁-C₂₀ alkoxy, halo, cyano.

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